

## Abstract

### Thermal Barrier Coating Systems and Materials

5        A ceramic material has particular utility as a thermal insulating or thermal barrier coating  
on metallic substrates. The ceramic material includes gadolinia and hafnia, preferably forming  
gadolinia-hafnia. This material exhibits chemical stability, thermal stability and thermal  
insulating properties superior to those of currently used thermal barrier ceramics, and also  
provides resistance to sintering and erosion comparable to currently used ceramics. A preferred  
10      material has between about 3 - 70 mol. % hafnia, balance hafnia.

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